

period for determining compliance with the 0.5 receiving water pH limitation is included in this Order.

- i. **Pesticides.** The Basin Plan includes a water quality objective for pesticides beginning on page III-6.00. Receiving Water Limitations for pesticides are included in this Order and are based on the Basin Plan objective.
- j. **Radioactivity.** The Basin Plan includes a water quality objective that *"[R]adionuclides shall not be present in concentrations that are harmful to human, plant, animal or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal or aquatic life."* The Basin Plan states further that *"[A]t a minimum, waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of radionuclides in excess of the maximum contaminant levels (MCLs) specified in Table 4 [currently referred to as Table 64443] (MCL Radioactivity) of Section 64443 of Title 22 of the California Code of Regulations..."* Receiving Water Limitations for radioactivity are included in this Order and are based on the Basin Plan objective.
- k. **Suspended Sediments.** The Basin Plan includes a water quality objective that *"[T]he suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses"* Receiving Water Limitations for suspended sediments are included in this Order and are based on the Basin Plan objective.
- l. **Settleable Substances.** The Basin Plan includes a water quality objective that *"[W]aters shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses."* Receiving Water Limitations for settleable substances are included in this Order and are based on the Basin Plan objective.
- m. **Suspended Material.** The Basin Plan includes a water quality objective that *"[W]aters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses."* Receiving Water Limitations for suspended material are included in this Order and are based on the Basin Plan objective.
- n. **Taste and Odors.** The Basin Plan includes a water quality objective that *"[W]ater shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses."* Receiving Water Limitations for taste- or odor-producing substances are included in this Order and are based on the Basin Plan objective.
- o. **Temperature.** The Thermal Plan is applicable to this discharge. The thermal Plan requires that the discharge shall not cause the following in San Joaquin River:

- i. *"The creation of a zone, defined by water temperatures of more than 1°F above natural receiving water temperature, which exceeds 25 percent of the cross-sectional area of the river channel at any point.*
- ii. *A surface water temperature rise greater than 4°F above the natural temperature of the receiving water at any time or place."*

Numeric receiving Water Limitations for temperature are included in this Order and are based on the Thermal Plan requirements.

- p. **Toxicity.** The Basin Plan includes a water quality objective that *"[A]ll waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life."* Receiving Water Limitations for toxicity are included in this Order and are based on the Basin Plan objective.
- q. **Turbidity.** The Basin Plan includes a water quality objective that *"[I]ncreases in turbidity attributable to controllable water quality factors shall not exceed the following limits:*
  - *Where natural turbidity is between 0 and 5 Nephelometric Turbidity Units (NTUs), increases shall not exceed 1 NTU.*
  - *Where natural turbidity is between 5 and 50 NTUs, increases shall not exceed 20 percent.*
  - *Where natural turbidity is between 50 and 100 NTUs, increases shall not exceed 10 NTUs.*
  - *Where natural turbidity is greater than 100 NTUs, increases shall not exceed 10 percent."*

A numeric Receiving Surface Water Limitation for turbidity is included in this Order and is based on the Basin Plan objective for turbidity.

## **B. Groundwater**

1. **Basin Plan, Beneficial Uses, and Regulatory Considerations.** The beneficial uses of the underlying ground water are municipal and domestic supply, industrial service supply, industrial process supply, and agricultural supply.

Basin Plan water quality objectives for groundwater include narrative objectives for toxicity, chemical constituents, and tastes and odors. The toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants, animals, or aquatic life. The chemical constituent objective states groundwater shall not contain chemical constituents in concentrations that adversely affect any beneficial use. The tastes and odors objective prohibits taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses. The Basin Plan also establishes numerical water quality objectives for bacteria, chemical

constituents, and radioactivity in groundwater designated as municipal supply; these include, at a minimum, compliance with MCLs in Title 22 of the CCR. Additionally, the bacteria objective prohibits coliform organisms at or above 2.2 MPN/100 mL.

The Basin Plan requires the application of the most stringent objective necessary to ensure that waters do not contain chemical constituents, toxic substances, radionuclides, taste- or odor-producing substances, or bacteria in concentrations that adversely affect municipal or domestic supply, agricultural supply, industrial supply or some other beneficial use.

2. **Antidegradation.** The antidegradation directives of State Water Board Resolution No. 68-16, "Statement of Policy With Respect to Maintaining High Quality Waters in California," or "Antidegradation Policy" require that waters of the State that are better in quality than established water quality objectives be maintained "*consistent with the maximum benefit to the people of the State.*" Some degradation of the groundwater for certain constituents is consistent with maximum benefit to the people of California because the technology, energy, and waste management advantages of municipal water treatment plants far outweigh the environmental impact of a community that would otherwise be reliant on numerous domestic wells. Economic prosperity of local communities is of maximum benefit to the people of California, and therefore, sufficient reason to accommodate this wastewater discharge provided terms of reasonable degradation are defined and met.

3. **Wastewater Storage.** The Discharger utilizes an unlined sludge lagoon located within the secondary treatment facility on the east side of the San Joaquin River, and three unlined facultative oxidation ponds located on the west side of the San Joaquin River that store treated domestic water before the tertiary treatment process. Domestic wastewater contains constituents of concern such as total dissolved solids (TDS), specific conductivity (EC), pathogens, nitrates, organics, metals, and oxygen demanding substances (BOD).

Within the eastern portion of the Facility, digested "*sludge is pumped to a sludge lagoon where it is allowed to concentrate. A dredge is used to pump settled and concentrated material off the bottom of the lagoon. . .*" (ROWD, September 2006) Within the western portion of the Facility, "*Effluent is introduced into a recirculation canal at the northeast corner of Pond #1 [located adjacent to the San Joaquin River], from where it flows south and then west around the perimeter of Ponds #1-3. Control gates along the recirculation canal are opened or closed as needed to introduce effluent to the south end of the facultative ponds. Similar flow control gates are located at a lower elevation along the northern edge of the facultative ponds and allow pond water into a recirculation canal parallel to the facultative pond's northern edges. . . . A perimeter groundwater interceptor drainage ditch is located outside the recirculation canal south of the facultative ponds and a subsurface interceptor drain is located west of the recirculation canal west of Pond #3.*" From the interceptor ditch, "*captured groundwater is pumped back to the recirculation canal. . . Water from the facultative ponds entering the north recirculation canal can be directed via pipeline northward to another recirculation canal that delivers water to the west end of the engineered wetlands.*" (Condor Earth Technologies, Inc. 22 September 2006)

Treated domestic sewage in the unlined lagoon, recirculation canals, or facultative ponds, may result in an increase in the concentration of constituents of concern in groundwater, and therefore, the previous Order No. R5-2002-0083 required the Discharger to design and construct a network of groundwater monitoring wells that includes *"one or more background monitoring wells and a sufficient number of designated monitoring wells to evaluate performance of best practicable control technology (BPCT) measures and to determine if the discharge has degraded groundwater."*

4. **Groundwater Quality.** By 17 December 2003, the Discharger installed fourteen monitoring wells (MW1 – MW14), and to identify background groundwater quality, two additional monitoring wells were installed (MW15 and MW16). Surface water samples were also obtained from the San Joaquin River near (1) Garwood Bridge, (2) the intersection of San Joaquin River and Burns Cutoff, (3) Pond No. 2, (4) the Agricultural Ditch West of Pond #3, and (5) Pump Station near Oxidation Pond #1. In 2005, two additional monitoring wells were installed, MW-17 and MW-18. MW-17 was installed down gradient (east) of MW-13, which contained nitrate concentrations that exceed the MCL. MW-18 was installed outboard of the recirculation canal to relocate MW-4, which may have been influenced by, or directly hydraulically connected to, the recirculation canal and therefore may not be representative of groundwater conditions (Geotechnical Consultants, Inc. 2004, Condor Earth Technologies, Inc. 2006). The secondary-level treated effluent discharged through the recirculation canal and stored in the facultative ponds was not monitored.

Quarterly samples of electrical conductivity (EC), total dissolved solids (TDS), ammonia, nitrate as nitrogen, Total Kjeldahl Nitrogen (TKN), and total coliform were collected. Water quality as indicated by the analytical results shows high levels of EC and TDS in monitoring wells MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-7, MW-12, MW-13, MW-17, and MW-18. Analytical results also show high levels of nitrate in monitoring wells MW-10 and MW-13, and high levels of total coliform in monitoring wells MW-7, MW-8, MW-9, MW-13, and MW-17. Table F-13 below summarizes the range of the data from the period of December 2004 through June 2006 for some monitoring wells.

Monitoring well MW-4 is located between the recirculation canal and the groundwater interceptor drain, and therefore, may not represent groundwater conditions. Monitoring wells MW-8, MW-9, MW-11, and MW-14 are located close to the San Joaquin River and reflect the influence of fresh water recharge from the river, and therefore, also may not represent groundwater conditions. MW-1, MW-2, and MW-10 are also located along the western side of the San Joaquin River. However, MW-1 and MW-2, located on the eastern side of Pond #1 and along the recirculation canal, contain higher EC and TDS levels than the San Joaquin River, which suggests that these wells may be hydraulically and chemically influenced by Pond #1 or the recirculation canal. No known samples were obtained from Pond #1 nor the secondary effluent to conclude differently, and the single sample obtained from Pond #2, which contained EC and TDS concentrations at 1100 and 600 mg/L, respectively, is insufficient data to make informed, appropriate determinations. MW-10, located near an effluent canal, contains high levels of nitrate, which

suggests that it may be hydraulically and chemically influenced by the effluent.  
(Geotechnical Consultants, Inc. 2004, Condor Earth Technologies, Inc. 2006)

Table F-13. Summary of Groundwater Conditions

Parameter	Water Quality Objectives	Background Monitoring Wells		Groundwater Monitoring Wells Near Ponds						Monitoring Wells at Secondary Facility		
				Between Ponds & SJR		South of Ponds		West of Ponds		Sludge Lagoon	East of Clarifiers	
		MW-15	MW-16	MW-1	MW-2	MW-3	MW-5	MW-6	MW-7	MW-12	MW-13	MW-17
EC (umhos/cm)	700 <sup>2</sup>	1012 -	1056 -	1478 -	1544 -	1750 -	1830 -	1197 -	1462 -	1211 -	1640 -	1293 -
	900, 1600, 2200 <sup>3</sup>	1662	1922	2886	2869	1800	2492	1940	2233	2305	2976	2322
TDS (mg/L)	450 <sup>2</sup>	870 -	1170 -	1440 -	1430 -	990 -	1490 -	1130 -	1200 -	1020 -	1670 -	1430 -
	500, 1000, 1500 <sup>3</sup>	1170	1220	1510	1570	1040	1570	1250	1290	1420	2050	1730
Ammonia as N	1.5	-0.2 to 10.6	-0.2 to 0.3	-0.2 to 3.8	-0.2 to 0.6	-0.2 to 0.7	-0.2 to 0.4	-0.2 to 0.3	-0.2 to 0.4	-0.2 to 2.2	-0.2 to 1.5	-0.2 to 0.2
Nitrate as N (mg/L)	10 <sup>1</sup>	-0.1 to 22.2	-0.1	-0.1 to 0.2	-1	-0.1	-0.1 to 1.2	-0.1	-0.1	-0.1	0.6 to 38.6	1.1 to 7.5
TKN	--	-0.5	<0.5	0.5	0.6	-0.5	1.1	0.5	-0.5	6	-0.5	0.6
Total Coliform (MPN/100 mL)	<2.2 <sup>4</sup>	23 - 7000	-2 to 80	-2 to 70	-2 to 13	-2 to 50	-2 to 23	-2 to 80	-2 to 11100	-2 to 3.6	-2 to 24000	-2 to 80

1. USEPA Drinking Water Standards (Primary Maximum Contaminant Level)
2. Agricultural water quality goals based on *Water Quality for Agriculture*, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985) Agricultural water quality goals listed provide no restrictions on crop type or irrigation methods for maximum crop yield. Higher concentrations may require special irrigation methods to maintain crop yields or may restrict types of crops grown.
3. Department of Public Health Secondary MCLs. The secondary MCLs are stated as a recommended level, upper level, and a short-term maximum level.
4. Basin Plan water quality objective for MUN beneficial use.
5. **Background Conditions.** The Facility is located in the San Joaquin Delta, and the Facility is bifurcated by the San Joaquin River. In general, areas of poor water quality with high salinity exist throughout the Delta subbasin. TDS values range from 210 to 7800 mg/L and average about 1190 mg/L. Areas of elevated chloride and nitrate occur in several areas within the subbasin. (California's Groundwater, Bulletin 118, 20 January 2006) Monitoring results obtained along this segment of the San Joaquin River indicate an average TDS value of about 400 mg/L, which is significantly lower than the subbasin levels. Land use to the west of the Facility is predominately agricultural, and land use to the east of the Facility is mixed uses of agricultural and municipal supply water. "Groundwater flow occurs primarily through fine-grained sand and silty sand channel deposits found as laterally discontinuous lenses and stringers set within clays. The approximate depth of the silty channel deposits is on the order of 150 feet. The upper aquifer has poor transmissivity and low storage." (Geotechnical Consultants, Inc. 2004)

By definition background groundwater conditions are those pollutants that are present in the groundwater that are not attributable to the Facility's activities. Rather, these conditions are outside the influence of the Facility, and may be caused by local geophysical, hydrological, and meteorological process, and wildlife and

outside anthropogenic activities. The Discharger installed two background monitoring wells, MW-15 and MW-16. *"Background well MW-15 is located 1700 feet upgradient of the ponds to the south, and background well MW-16 is located 2500 feet downgradient of the ponds to the west. . . MW-15 is a true background well, uninfluenced by the presence of the ponds."* (Condor Earth Technologies, Inc. September 2006) These background monitoring wells are located on the western side of the San Joaquin River. Previous Table F-13 summarizes the range of data obtained in the background monitoring wells MW-15 and MW-16, which, at times, exceed water quality objectives. No known background monitoring well was installed on the eastern side of the San Joaquin River.

The Basin Plan stipulates that when the background condition(s) is less stringent than the numeric water quality objective, the background condition supercedes the numeric water quality objective. Therefore establishing the numeric level at which constituents of concern are present in the groundwater with no influence from the Facility is relevant in determining if the discharge degrades groundwater and in evaluating the performance of the Facility's BPCT measures. Since anthropogenic activities do not affect all aspects of water quality, it is possible that background water quality conditions can exist for one constituent but not for another, and therefore, generalizations about the subbasin water quality conditions may not adequately protect the beneficial uses. For instance, the high levels of EC and TDS at MW-1 and MW-2 and the high levels of nitrates in MW-10 and MW-13 indicate possible localized impacts. The Discharger's groundwater condition study states *"the geology creates a situation where there is considerable variability and poor interconnection between groundwater at different places."* (Condor Earth Technologies, Inc. September 2006)

6. **Groundwater Limits.** In allowing a discharge, the Regional Water Board must comply with CWC Section 13263 in setting appropriate conditions. The Regional Water Board is required, relative to the groundwater that may be affected by the discharge, to implement the Basin Plan and consider the beneficial uses to be protected along with the water quality objectives essential for that purpose. The Regional Water Board need not authorize the full utilization of the waste assimilation capacity of the groundwater (CWC 13263(b)) and must consider other waste discharges and factors that affect that capacity.

TDS and EC concentrations in nearly all wells, including at times the background wells, exceed water quality objectives. However, high TDS and EC concentration values in localized areas such as monitoring wells MW-1 and MW-2 located between Pond #1 and the San Joaquin River on the western portion of the Facility, indicate that the treated domestic wastewater may be impacting groundwater. Further indications that MW-1 and MW-2 may be locally impacted comes from a hydrograph study finding that states *"there is a net hydrostatic pressure gradient towards the river from the ponds."* (Condor Earth Technologies, Inc. September 2006) Also, nitrate concentration values in MW-10 located near the San Joaquin River and the effluent discharge on the western portion of the Facility indicate that certain wastewater control practices may not be justified as representative of Best Practicable Treatment and Control (BPTC). On the eastern portion of the Facility,

high TDS and EC concentrations in MW-12, MW-13 and MW-17 and high nitrate concentrations in MW-13 and MW-17 indicate that certain aspects of wastewater treatment and control practices also may not be justified as representative of BPTC, or certain operation and maintenance practices may not be justified as best management practices. Still, insufficient data has been reported to establish background groundwater conditions, even though it appears that groundwater in the aquifer beneath the Facility may be impacted for beneficial uses. Though groundwater monitoring has been conducted around the Facility, additional background groundwater quality data are needed to establish the most appropriate groundwater limits. Reasonable time is necessary to gather specific information about the Facility to make informed, appropriate, long-term decisions.

Therefore, this Order provisionally requires the Discharger to install additional monitoring wells and any other testing needed to effectively and fully characterize background quality conditions. Based on this information, the Discharger must technically evaluate the Facility's processes or storage areas and submit a time schedule to implement or modify BPTCs as necessary. This Order also contains narrative and numeric groundwater limitations that become effective upon completion of the background quality condition and BPTC evaluation studies. This Order contains a reopener to add or modify groundwater limitations as necessary.

In addition, this Order requires the continued monitoring of the groundwater monitoring network to monitor the impact of the discharge and help develop long-term groundwater limits. This Order also requires monitoring of the secondary effluent transported to the facultative ponds to measure concentrations of certain constituents contained in the treated domestic wastewater, and of the pond water to determine whether degradation of the groundwater for certain constituents from percolation of the treated domestic wastewater stored in the unlined facultative ponds is consistent with maximum benefit to the people of California, and thus, complies with Antidegradation Policy.

## **VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS**

Section 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorizes the Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program (MRP), Attachment E of this Order, establishes monitoring and reporting requirements to implement federal and state requirements. The following provides the rationale for the monitoring and reporting requirements contained in the MRP for this facility.

### **A. Influent Monitoring**

1. Influent monitoring is required to collect data on the characteristics of the wastewater and to assess compliance with effluent limitations (e.g., BOD<sub>5</sub> and TSS reduction requirements). Influent monitoring requirements for flow, pH, CBOD<sub>5</sub>, TSS, EC, and TDS are retained from previous Order No. R5-2002-0083.

## **B. Effluent Monitoring**

1. Pursuant to the requirements of 40 CFR §122.44(i)(2) effluent monitoring is required for all constituents with effluent limitations. Effluent monitoring is necessary to assess compliance with effluent limitations, assess the effectiveness of the treatment process, and to assess the impacts of the discharge on the receiving stream. Because the effluent data submitted by the Discharger did not demonstrate reasonable potential for barium, chromium VI, chloroform, copper, DDT, dichloromethane, endrin aldehyde, lead, lindane, TCE, PCE, or 1,1-dichloroethylene, specific effluent monitoring requirements for these parameters were removed. These parameters will continue to be monitored annually as part of the priority pollutant monitoring. Effluent monitoring requirements from the previous order for the remaining parameters are carried over to assess compliance with effluent limitations. Monitoring requirements for aluminum, dissolved oxygen, and manganese are established or modified from the previous order to assess compliance with newly established effluent limitations. Monitoring requirements for methyl-mercury, sulfur dioxide, and sodium bisulfate have been added to assess the impacts of the discharge on the receiving stream. A special study requires monitoring of priority pollutants (Provision VI.C.2.d) to assess reasonable potential to exceed water quality criteria for these parameters.

## **C. Whole Effluent Toxicity Testing Requirements**

1. **Acute Toxicity.** Consistent with the requirements contained in previous Order No. R5-2002-0083, weekly 96-hour bioassay testing is required to demonstrate compliance with the effluent limitation for acute toxicity.
2. **Chronic Toxicity.** Chronic whole effluent toxicity testing has been retained from previous Order No. R5-2002-0083 to demonstrate compliance with the Basin Plan's narrative toxicity objective.

## **D. Receiving Water Monitoring**

### **1. Surface Water Monitoring and Visual Observations**

- a. Receiving water monitoring and visual observations are necessary to assess compliance with receiving water limitations and to assess the impacts of the discharge on the receiving stream to assess reasonable potential to exceed water quality criteria for these parameters. Receiving water monitoring is carried over from the previous Order.

### **2. Groundwater Monitoring**

- a. Section 13267 of the California Water Code states, in part, "(a) A Regional Water Board, in establishing...waste discharge requirements... may investigate the quality of any waters of the state within its region" and "(b) (1) In conducting an investigation..., the Regional Water Board may require that any person who..."



*discharges... waste...that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the Regional Water Board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports."* In requiring those reports, the Regional Water Board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports. The Monitoring and Reporting Program (Attachment E) is issued pursuant to California Water Code Section 13267. The groundwater monitoring and reporting program required by this Order and the Monitoring and Reporting Program are necessary to assure compliance with these waste discharge requirements. The Discharger is responsible for the discharges of waste at the Facility subject to this Order.

- b. This Order requires the Discharger to continue groundwater monitoring as established under previous Order No. R5-2002-0083 and includes a regular schedule of groundwater monitoring in the attached Monitoring and Reporting Program. The groundwater monitoring reports are necessary to evaluate impacts to waters of the State to assure protection of beneficial uses and compliance with Regional Water Board plans and policies, including Resolution No. 68-16. Evidence in the record includes effluent monitoring data that indicates the presence of constituents that may degrade groundwater and surface water. For additional information see previous Section V.B of this Fact Sheet.

#### **E. Other Monitoring Requirements**

- 1. Reclamation Monitoring**

Reclamation monitoring is required to ensure compliance with Effluent Limitations and Discharge Specifications IV.C. in the Limitations and Discharge Requirements section of this Order.

- 2. Biosolids Monitoring**

Biosolids monitoring is required to ensure compliance with the biosolids disposal requirements (Special Provisions VI.C.5.b, c, and d). Biosolids disposal requirements are imposed pursuant to 40 CFR Part 503 to protect public health and prevent groundwater degradation.

- 3. Water Supply Monitoring**

Water supply monitoring is required to evaluate the source of constituents in the wastewater.

- 4. Monitoring of Secondary Effluent and Facultative Ponds**

Monitoring of the secondary effluent and the wastewater in the facultative ponds are necessary to assess the impacts of the percolate to groundwater. Secondary effluent and pond monitoring are new requirements in this Order because the localized background groundwater conditions have not been determined, which is necessary to ensure compliance with the Groundwater Limitations V.B in the

Limitations and Discharge Requirements section of this Order. For additional information see sections V.B. and VII.B.2.c. of this Fact Sheet.

## VII. RATIONALE FOR PROVISIONS

### A. Standard Provisions

Standard Provisions, which apply to all NPDES permits in accordance with section 122.41, and additional conditions applicable to specified categories of permits in accordance with section 122.42, are provided in Attachment D. The discharger must comply with all standard provisions and with those additional conditions that are applicable under section 122.42.

Section 122.41(a)(1) and (b) through (n) establish conditions that apply to all State-issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the regulations must be included in the Order. Section 123.25(a)(12) allows the state to omit or modify conditions to impose more stringent requirements. In accordance with section 123.25, this Order omits federal conditions that address enforcement authority specified in sections 122.41(j)(5) and (k)(2) because the enforcement authority under the Water Code is more stringent. In lieu of these conditions, this Order incorporates by reference Water Code section 13387(e).

### B. Special Provisions

#### 1. Reopener Provisions

- a. **Special Provisions VI.C.1.a. & b.** These provisions are based on CFR Part 123 and allow future modification of this Order and its effluent limitations as necessary in response to updated WQOs that may be established in the future.
- b. **Mercury, Total.** This provision allows the Regional Water Board to reopen this Order in the event a mercury TMDL program is adopted. In addition, this Order shall be reopened if the Regional Water Board determines that a mercury offset program is feasible for dischargers subject to a NPDES permits.
- c. **Pollution Prevention.** This Order requires the Discharger to update and implement the salinity and mercury pollution prevention plans (PPP) following CWC section 13263.3(d)(3). This reopener provision allows the Regional Water Board to reopen this Order for addition and/or modification of effluent limitations and requirements for these constituents based on a review of the pollution prevention plans and success in the implementation of these plans.
- d. **Whole Effluent Toxicity.** This Order requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity through a Toxicity Reduction Evaluation (TRE). This Order may be reopened to include a numeric chronic toxicity limitation, a new acute toxicity limitation, and/or

a limitation for a specific toxicant identified in the TRE. Additionally, if a numeric chronic toxicity water quality objective is adopted by the State Water Board, this Order may be reopened to include a numeric chronic toxicity limitation based on that objective.

- e. **Water Effects Ratio (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating CTR criteria and Basin Plan objectives for ammonia or applicable priority pollutant inorganic constituents. If the Discharger performs defensible water effect ratio studies to determine site-specific WERs and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for applicable constituents. Accordingly, this provision allows the Regional Water Board to reopen this Order to modify the applicable effluent limitations in the event that the Discharger conducts and completes these studies, or based upon an independent scientific peer review's defensible findings that update the national ambient water quality criteria for aluminum.
- f. **Best Practicable Treatment or Control Assessment.** This Order requires the Discharger to complete and submit a correction action plan and implementation schedule for necessary modifications to any of the Facility's storage, treatment, or disposal components where the groundwater monitoring results exceed either the background monitoring results or the appropriate numeric groundwater water quality objectives that are adequately protective of the beneficial uses. This reopener provision allows the Regional Water Board to reopen this Order for addition and/or modification of the groundwater limitations and requirements based on this report and the site-specific objectives for protection of the beneficial uses.
- g. **Central Valley Drinking Water Policy (Special Provisions VI.C.1.i.).** The Regional Water Board is currently working with stakeholders to develop a Drinking Water Policy for the Central Valley. Based on the current schedule, the Basin Plan may be proposed to be amended in 2009 or 2010 to incorporate water quality objectives for the protection of drinking water supplies. A reopener has been included in the Order to allow the Regional Water Board to reopen the permit to include appropriate effluent limitations, as appropriate, to require compliance with these objectives.
- h. **Ammonia Studies.** The Regional Water Board contracted with researchers at the University of California, Davis Aquatic Toxicology Laboratory to initiate studies to evaluate the potential effects of ammonia on delta smelt. This reopener provision allows the Regional Water Board to reopen this Order for addition and/or modification of the ammonia limitations and requirements based on this report or based upon other defensible scientific findings.
- i. **Regional Monitoring Program.** The State and Regional Water Boards are committed to creation of a coordinated Regional Monitoring Program to address receiving water monitoring in the Delta for all Water Board regulatory and research programs. This reopener provision allows the Regional Water Board to

reopen this Order to make appropriate adjustments in permit-specific monitoring to coordinate with the Regional Monitoring Program.

- i. **The Bay-Delta Plan.** The South Delta salinity standards are currently under review by the State Water Board in accordance with implementation provisions contained in the Bay-Delta Water Quality Control Plan. This review in process includes an updated independent scientific investigation of irrigation salinity needs in the southern Delta. A reopener has been included in the Order to allow the Regional Water Board to reopen the permit to include appropriate effluent limitations, as appropriate, to require compliance with these objectives.

## 2. Special Studies, Technical Reports, and Additional Monitoring Requirements

- a. **Chronic Whole Effluent Toxicity Requirements.** The Basin Plan contains a narrative toxicity objective that states, "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" (Basin Plan at III-8.00.) To comply with Provision G.12 in the previous permit, Order No. R5-2002-0083, the Discharger submitted a TRE/TIE Work Plan, dated 26 July 2002. On 27 March 2003, Regional Water Board staff provided comments regarding the TIE/TRE Work Plan and the Discharger's subsequent Technical Memorandum dated 11 December 2002, and requested the Discharger to update the TIE/TRE Work Plan accordingly. Subsequently, the Discharger submitted the revised TIE/TRE Work Plan on 10 December 2003, and the Executive Officer conditionally approved the work plan on 4 May 2004.

In April 2007, the Discharger concluded the TRE, and submitted the evaluation report to the Regional Water Board, *Assessment of the City of Stockton's Historic Whole Effluent Toxicity Testing and Toxicity Reduction Evaluation Programs for Selenastrum capricornutum*, Jones & Stockes Associates. The TRE identified the toxicant in the *Selenastrum capricornutum* bioassay as ammonia. Recent Facility upgrades that included new nitrification facilities were expected to reduce the occurrence of the toxicant ammonia. Subsequent accelerated monitoring concluded in October 2007 without further *Selenastrum capricornutum* (algae) toxicity, and, therefore, confirmed the TRE findings.

This provision requires the Discharger to update its TRE Work Plan in accordance with USEPA guidance. In addition, the provision provides a numeric toxicity monitoring trigger and requirements for accelerated monitoring, as well as, requirements for TRE initiation if a pattern of toxicity has been demonstrated.

**Monitoring Trigger.** A numeric toxicity monitoring trigger of  $> 1 \text{ TUc}$  (where  $\text{TUc} = 100/\text{NOEC}$ ) is applied in the provision, because this Order does not allow any dilution for the chronic condition. Therefore, a TRE is triggered when the effluent exhibits a pattern of toxicity at 100% effluent.

**Accelerated Monitoring.** The provision requires accelerated WET testing when a regular WET test result exceeds the monitoring trigger. The purpose of accelerated monitoring is to determine, in an expedient manner, whether there is a pattern of toxicity before requiring the implementation of a TRE. Due to possible seasonality of the toxicity, the accelerated monitoring should be performed in a timely manner, preferably taking no more than 2 to 3 months to complete.

The provision requires accelerated monitoring consisting of four chronic toxicity tests every 2 weeks using the species that exhibited toxicity. Guidance regarding accelerated monitoring and TRE initiation is provided in the *Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001, March 1991* (TSD). The TSD at page 118 states, "EPA recommends if toxicity is repeatedly or periodically present at levels above effluent limits more than 20 percent of the time, a TRE should be required." Therefore, four accelerated monitoring tests are required in this provision. If no toxicity is demonstrated in the four accelerated tests, then it demonstrates that toxicity is not present at levels above the monitoring trigger more than 20 percent of the time (only 1 of 5 tests are toxic, including the initial test). However, notwithstanding the accelerated monitoring results, if there is adequate evidence of a pattern of effluent toxicity (i.e. toxicity present exceeding the monitoring trigger more than 20 percent of the time), the Executive Officer may require that the Discharger initiate a TRE.

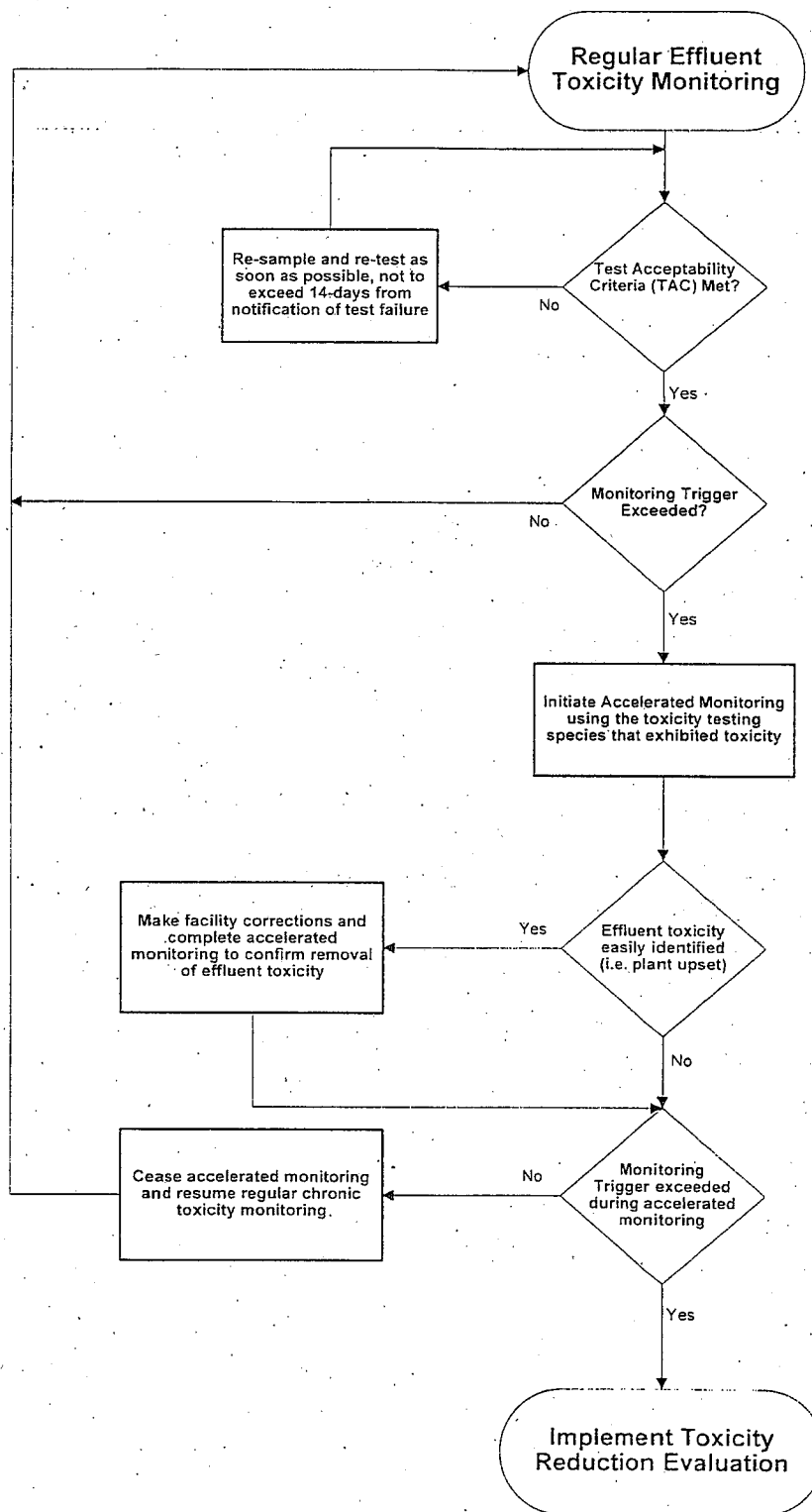
See the WET Accelerated Monitoring Flow Chart (Figure F-1), below, for further clarification of the accelerated monitoring requirements and for the decision points for determining the need for TRE initiation.

**TRE Guidance.** The Discharger is required to update its TRE Work Plan in accordance with USEPA guidance. Numerous guidance documents are available, as identified below:

- *Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants, EPA/833B-99/002, August 1999.*
- *Generalized Methodology for Conducting Industrial TREs, EPA/600/2-88/070, April 1989.*
- *Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures, Second Edition, EPA/600/6-91/005F, February 1991.*
- *Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I, EPA/600/6-91/005F, May 1992.*

- *Methods for Aquatic Toxicity Identification Evaluations: Phase II Toxicity Identification Procedures for Samples Exhibiting acute and Chronic Toxicity*, Second Edition, EPA/600/R-92/080, September 1993.
- *Methods for Aquatic Toxicity Identification Evaluations: Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity*, Second Edition, EPA/600/R-92/081, September 1993.
- *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, Fifth Edition, EPA/821/R-02/012, October 2002.
- *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*, Fourth Edition, EPA/821/R-02/013, October 2002.
- *Technical Support Document for Water Quality-based Toxics Control*, EPA/505/2-90/001, March 1991.

Figure F-1  
WET Accelerated Monitoring Flow Chart



- b. **Effluent and Receiving Water Characterization Study.** An effluent and receiving water monitoring study is required to ensure adequate information is available for the next permit renewal.
- c. **Time Schedule for Compliance with Groundwater Limitations and Best Practicable Treatment or Control (BPTC).** The previous permit required the Discharger to install a groundwater monitoring network, including the characterization of background groundwater quality. To comply, the Discharger installed 18 monitoring wells, which includes the background groundwater quality monitoring well, MW-15. Quarterly monitoring results from 30 December 2003, through 5 February 2008, indicated that the Facility's storage, treatment, or disposal components may have degraded the underlying groundwater quality. Therefore this provision is necessary to prevent further degradation of the underlying groundwater within the influences of the Facility, and to ensure that the Beneficial Uses of the groundwater are protected. For additional information see previous Section V.B of this Fact Sheet.

### 3. Best Management Practices and Pollution Prevention

- a. **Pollution Prevention Plan (PPP) for Mercury.** The Discharger shall update and implement its PPP for mercury (*Pollution Prevention Plan Implementation for Total Dissolved Solids [salinity], Mercury and Group A Pesticides*, February 2005), in accordance with CWC section 13263.3(d)(1)(D). The interim effluent limitation for mercury limits the mass loading to current levels. The PPP for mercury is necessary to ensure that the discharge of this pollutant does not increase pending the development of TMDLs.
- b. **CWC section 13263.3(d)(3) Pollution Prevention Plans.** The pollution prevention plans required for mercury and salinity [measured as electrical conductivity] shall, at a minimum, meet the requirements outlined in CWC section 13263.3(d)(3). The minimum requirements for the pollution prevention plans include the following:
  - i. An estimate of all of the sources of a pollutant contributing, or potentially contributing, to the loadings of a pollutant in the treatment plant influent.
  - ii. An analysis of the methods that could be used to prevent the discharge of the pollutants into the Facility, including application of local limits to industrial or commercial dischargers regarding pollution prevention techniques, public education and outreach, or other innovative and alternative approaches to reduce discharges of the pollutant to the Facility. The analysis also shall identify sources, or potential sources, not within the ability or authority of the Discharger to control, such as pollutants in the potable water supply, airborne pollutants, pharmaceuticals, or pesticides, and estimate the magnitude of those sources, to the extent feasible.



- iii. An estimate of load reductions that may be attained through the methods identified in subparagraph ii.
  - iv. A plan for monitoring the results of the pollution prevention program.
  - v. A description of the tasks, cost, and time required to investigate and implement various elements in the pollution prevention plan.
  - vi. A statement of the Discharger's pollution prevention goals and strategies, including priorities for short-term and long-term action, and a description of the Discharger's intended pollution prevention activities for the immediate future.
  - vii. A description of the Discharger's existing pollution prevention programs.
  - viii. An analysis, to the extent feasible, of any adverse environmental impacts, including cross-media impacts or substitute chemicals that may result from the implementation of the pollution prevention program.
  - ix. An analysis, to the extent feasible, of the costs and benefits that may be incurred to implement the pollution prevention program.
- c. **Salinity Reduction Goal.** In an effort to monitor progress in reducing salinity discharges to the San Joaquin River, the Discharger shall provide annual reports demonstrating reasonable progress in the reduction of salinity in its discharge to the San Joaquin River. An annual average salinity goal of the maximum weighted average electrical conductivity of the City of Stockton's water supply (i.e. 273  $\mu\text{mhos/cm}$  in March 2005), plus an increment of 500  $\mu\text{mhos/cm}$  for typical consumptive use, has been established as a reasonable goal during the term of this permit. The annual reports shall be submitted in accordance with the Monitoring and Reporting Program (Attachment E, Section X.D.1.).
- d. **Salinity Plan.** The Regional Water Board, with cooperation of the State Water Board, has begun the process to develop a new policy for the regulation of salinity in the Central Valley. As previously described in this Fact Sheet, effluent data for EC and TDS indicate that effluent concentrations continue to be at levels of concern that may affect beneficial uses of the San Joaquin River. Therefore, this Order requires the Discharger to develop a Salinity Plan to reduce its salinity impacts to the San Joaquin River, which at a minimum must include source control measures, contributing financially in the development of the Central Valley Salinity Management Plan, and as reasonably possible, changing to water supplies with lower salinity. In addition, the Discharger is required to update and implement its pollution prevention plan for salinity in accordance with CWC section 13263.3(d)(3), and to implement pollution prevention measures to reduce the salinity in its discharge to the San Joaquin River.

The Antidegradation Policy (Resolution No. 68-16) requires that the Discharger implement best practicable treatment or control (BPTC) of its discharge. For salinity, the Regional Water Board is limiting effluent salinity of municipal

wastewater treatment plants to an increment of 500  $\mu\text{mhos/cm}$  over the salinity of the municipal water supply or at existing levels. Based on the available data submitted by the Discharger, the highest concentration of EC reported was 273  $\mu\text{mhos/cm}$ , based on 14 samples taken between September 2002 and June 2006. See previous section, "Salinity Production Goal", for additional information.

#### **4. Construction, Operation, and Maintenance Specifications**

- a. **Treatment Pond Operating Requirements.** Requirements for the operation and maintenance of the treatment ponds are established to prevent flooding, reduce nuisances, and reduce public health concerns.

#### **5. Special Provisions for Municipal Facilities (POTWs Only)**

- a. **Pretreatment Requirements.**

- i. CWA Section 307(b), and CFR Part 403, require publicly owned treatment works to develop an acceptable industrial pretreatment program. A pretreatment program is required to prevent the introduction of pollutants and prevent pass through of pollutants that exceed water quality objectives, standards or permit limitations. Pretreatment requirements are imposed pursuant to CFR Part 403.

- ii. The Discharger shall implement and enforce its approved pretreatment program and is an enforceable condition of this Order. If the Discharger fails to perform the pretreatment functions, the Regional Water Board, the State Water Board or the USEPA may take enforcement actions against the Discharger as authorized by the CWA.

- b. **Biosolids (Special Provisions VI.C.5.b-d).** The use, disposal, or storage of biosolids is regulated under federal and state laws and regulations, including permitting requirements and technical standards included in 40 CFR Part 503. The Discharger is required to comply with the standards and time schedules contained in 40 CFR Part 503.

Title 27, CCR, Division 2, Subdivision 1, section 20005 establishes approved methods for the disposal of collected screenings, residual sludge, biosolids, and other solids removed from liquid wastes. This Order includes requirements to ensure the Discharger disposes of solids in compliance with State and federal regulations.

- c. **Collection System.** The Discharger's collection system is part of the treatment system that is subject to the Order 2006-0003, adopted by the State Water Board in May 2006; this Order is a Statewide General WDR for Sanitary Sewer Systems. Therefore, the Discharger shall be subject to the requirements of Order 2006-0003 and any future revisions thereto. Pursuant to federal regulations, the Discharger must properly operate and maintain its collection

system [CFR Part 122.41(e)], report any non-compliance [CFR parts 122.41(l)(6) and (7)], and mitigate any discharge from the collection system in violation of this Order [CFR Part 122.41(d)].

- d. **Turbidity Operational Requirements.** Turbidity specifications have been included in this Order as a second indicator of the effectiveness of the treatment process and to assure compliance with the required level of treatment. Failure of the filtration system such that virus removal is impaired would normally result in increased particles in the effluent, which result in higher effluent turbidity. Turbidity has a major advantage for monitoring filter performance, allowing immediate detection of filter failure and rapid corrective action. These operational turbidity specifications are necessary to assess compliance with the DPH recommended Title 22 disinfection criteria. For further information see previous section IV.C.3.w. of this Fact Sheet.

## 6. Other Special Provisions

- a. **Tertiary Treatment.** To protect public health and safety, the Discharger is to comply with DHS reclamation criteria, CCR Title 22, Division 4, Chapter 3, or equivalent.
- b. To protect public health and safety, treatment and storage facilities shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.
- c. **Ownership Change.** Sections 122.41(l)(3) and 122.61 of the CFR establish requirements for the transfer of an NPDES permit. Special Provision VI.C.6.c of this Order requires the Discharger to comply with federal regulations for the transfer of NPDES permits in the event of a change of ownership.

## 7. Compliance Schedules – Not Applicable

## VIII. PUBLIC PARTICIPATION

The California Regional Water Quality Control Board, Central Valley Region (Regional Water Board) is considering the issuance of waste discharge requirements (WDRs) that will serve as a National Pollutant Discharge Elimination System (NPDES) permit for the City of Stockton Regional Wastewater Control Facility. As a step in the WDR adoption process, the Regional Water Board staff has developed tentative WDRs. The Regional Water Board encourages public participation in the WDR adoption process.

#### **A. Notification of Interested Parties**

The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Notification was provided through publication in the Stockton Record.

#### **B. Written Comments**

The staff determinations are tentative. Interested persons are invited to submit written comments concerning these tentative WDRs. Comments must be submitted either in person or by mail to the Executive Office at the Regional Water Board at the address above on the cover page of this Order.

To be fully responded to by staff and considered by the Regional Water Board, written comments should be received at the Regional Water Board offices by 5:00 p.m. on **22 September 2008**

#### **C. Public Hearing**

The Regional Water Board will hold a public hearing on the tentative WDRs during its regular Board meeting on the following date and time and at the following location:

Date: 23/24 October 2008  
Time: 8:30 am  
Location: Regional Water Quality Control Board, Central Valley Region  
11020 Sun Center Dr., Suite #200  
Rancho Cordova, CA 95670

Interested persons are invited to attend. At the public hearing, the Regional Water Board will hear testimony, if any, pertinent to the discharge, WDRs, and permit. Oral testimony will be heard; however, for accuracy of the record, important testimony should be in writing.

Please be aware that dates and venues may change. Our Web address is <http://www.waterboards.ca.gov/rwqcb5/> where you can access the current agenda for changes in dates and locations.

#### **D. Waste Discharge Requirements Petitions**

Any aggrieved person may petition the State Water Resources Control Board to review the decision of the Regional Water Board regarding the final WDRs. The petition must be submitted within 30 days of the Regional Water Board's action to the following address:

State Water Resources Control Board  
Office of Chief Counsel

P.O. Box 100, 1001 I Street  
Sacramento, CA 95812-0100

**E. Information and Copying**

The Report of Waste Discharge (RWD), related documents, tentative effluent limitations and special provisions, comments received, and other information are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the Regional Water Board by calling 916-464-3291.

**F. Register of Interested Persons**

Any person interested in being placed on the mailing list for information regarding the WDRs and NPDES permit should contact the Regional Water Board, reference this facility, and provide a name, address, and phone number.

**G. Additional Information**

Requests for additional information or questions regarding this order should be directed to Ms. Gayleen Perreira at 916-464-4824.

ATTACHMENT G - REASONABLE POTENTIAL SUMMARY

Constituent	Units	MEC	B	C	CMC	GGC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Aluminum	µg/L	1,900	1,800	87	750 <sup>1</sup>	87 <sup>2</sup>	--	--	--	200	Yes
Ammonia	µg/L	31,000	1,400	370	2,140 <sup>1,3</sup>	370 <sup>4,5</sup>	--	--	--	--	Yes
Antimony	µg/L	0.7	0.5	6	--	--	14	4,300	--	6	No
Arsenic	µg/L	4.4	4.1	10	340	150	--	--	--	10	No
Barium	µg/L	26	72	1,000	--	--	--	--	--	1,000	No
Bis(2-Ethylhexyl)Phthalate	µg/L	5.5	3.2	1.8	--	--	1.8	5.9	--	4	Yes
Bromoform	µg/L	0.8	<0.03	4.3	--	--	4.3	360	--	80	No
Cadmium	µg/L	0.04	<0.1	2.27	4.03	2.42	--	--	--	5	No
Carbofuran	µg/L	2.3	<5	18	--	--	--	--	--	18	No
Chloride	µg/L	210,000	140,000	106,000	860,000 <sup>1</sup>	230,000 <sup>2</sup>	--	--	--	210,000	No
Chlorodibromomethane	µg/L	29	<0.03	0.41	--	--	0.41	34	--	80	Yes
Chloroform	µg/L	21	0.3	80	--	--	--	--	--	80	No
Chromium (total)	µg/L	1.2	3.8	50	--	--	--	--	--	50	No
Chromium (VI)	µg/L	1.2	0.41	11.43	16.29	11.43	--	--	--	50	No
Copper	µg/L	6	5	8.53	13.74	9.17	1,300	--	--	1,000	No
Cyanide	µg/L	13	300	5.2	22	5.2	700	220,000	--	150	Yes
Dichlorobromomethane	µg/L	28	0.07	0.56	--	--	0.56	46	--	80	Yes
Diethyl Phthalate	µg/L	6	<2	23,000	--	--	23,000	120,000	--	--	No
Fluoride	µg/L	600	400	2,000	--	--	--	--	--	2,000	No
Iron, dissolved	µg/L	<12	100	300	--	--	--	--	--	300	No
Lead	µg/L	0.81	1.1	2.78	61.42	3.10	--	--	--	15	No
Manganese	µg/L	170	240	50	--	--	--	--	--	50	Yes
Mercury	µg/L	0.011	0.0088	0.05	1.40 <sup>1</sup>	0.77 <sup>2</sup>	0.05	0.051	--	2	No

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org Only	Basin Plan	MCL	Reasonable Potential
Methyl Chloride	µg/L	0.7	<0.5	3	--	--	--	--	--	3 <sup>7</sup>	No
Methyl tert-butyl ether	µg/L	2	3.4	5	151,000 <sup>1</sup>	51,000 <sup>2</sup>	--	--	--	5	No
Methylene Blue Activated Substances	µg/L	200	NA	500	--	--	--	--	--	500	No
Methylene Chloride	µg/L	0.48	0.12	4.7	--	--	4.7	1,600	--	5	No
Molybdenum	µg/L	13	NA	10	--	--	--	--	--	10 <sup>6</sup>	Yes
Nickel	µg/L	5	6.4	47.7	461.22	51.28	610	4,600	--	100	No
Nitrate	µg/L	29,000	4,200	10,000	--	--	--	--	--	10,000	Yes
Nitrite	µg/L	2,300	100	1,000	--	--	--	--	--	1,000	Yes
Phosphorus	µg/L	3,900	300	0.14	--	--	--	--	--	0.14 <sup>12</sup>	No
Selenium	µg/L	2	2	5	20	5	--	--	--	20 <sup>6</sup>	No
Silver	µg/L	0.4	0.03	3.39	3.90	--	--	--	--	100	No
Sulfate	µg/L	180,000	130,000	250,000	--	--	--	--	--	250,000	No
Tetrachloroethylene	µg/L	0.09	<0.04	0.8	--	--	0.8	8.85	--	5	No
Thallium	µg/L	0.3	0.1	1.7	1,400	40	1.7	6.3	--	2	No
Toluene	µg/L	3.6	<0.5	150	--	--	6,800	200,000	--	150	No
Trichloroethylene	µg/L	<0.05	0.2	2.7	--	--	2.7	81	--	5	No
Zinc	µg/L	20	9	117.78	117.78	109.58	--	--	--	5,000	No

General Notes: All inorganic concentrations are given as a total recoverable.

Although a RPA of all priority pollutants, and other constituents, were conducted, the Reasonable Potential Summary only displays the RPA results for those constituents where concentrations were detected either in the effluent (MEC) or in the background (B).

MEC = Maximum Effluent Concentration

B = Maximum Receiving Water Concentration or lowest detection level, if non-detected

C = Criterion used for Reasonable Potential Analysis

CMC = Criterion Maximum Concentration (CTR criterion unless otherwise noted)

CCC = Criterion Continuous Concentration (CTR criterion unless otherwise noted)

Water & Org = Water and Organism Criterion Concentration (CTR or NTR)

Basin Plan = Numeric Site-specific Basin Plan Water Quality Objective

MCL = Drinking Water Standards Maximum Contaminant Level

NA = Not available

ND = Reported as non-detected

Footnotes:

(1) USEPA National Recommended Ambient Water Quality Standard, 1-hour average

(2) USEPA National Recommended Ambient Water Quality Standard, 4-day average

(3) Salmonids present and maximum permitted effluent pH of 8.5

(4) USEPA National Recommended Ambient Water Quality Standard, 30-day average

(5) Early Life Stages (ELS) present and maximum allowable effluent pH of 8.5 and maximum allowable 30-day rolling average R-1 temperature of 8.0°C(6) Ayers, R.S. and D.W. Westcott, Water Quality for Agriculture, Food and Agriculture Organization of the United Nations - Irrigation and Drainage Paper No. 29, Rev. 1, Rome (1985)

(7) USEPA Drinking Water Health Advisory or Suggested No-Adverse-

Constituent	Units	MEC	B	C	GMC	CCC	Water & Org	Org Only	Basin Plan	MEC	Reassortable Potential
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Response Levels (SNARLs) for toxicity other than cancer risk  
(8) USEPA IRIS Reference Dose for white phosphorus. The Regional Board staff are still considering the applicability and relationship of this criterion to total phosphorus.



# Attachment H - Constituents to be monitored

			Controlling Water Quality Criterion for Surface Waters			
CTR #	Constituent	CAS Number	Basis	Criterion Concentration (ug/L or noted) (1)	Criterion Quantitation Limit (ug/L or noted)	Suggested Test Methods
<b>VOLATILE ORGANICS</b>						
28	1,1-Dichloroethane	75343	Primary MCL	5	0.5	EPA 8260B
30	1,1-Dichloroethene	75354	National Toxics Rule	0.057	0.5	EPA 8260B
41	1,1,1-Trichloroethane	71556	Primary MCL	200	0.5	EPA 8260B
42	1,1,2-Trichloroethane	79005	National Toxics Rule	0.6	0.5	EPA 8260B
37	1,1,2,2-Tetrachloroethane	79345	National Toxics Rule	0.17	0.5	EPA 8260B
75	1,2-Dichlorobenzene	95501	Taste & Odor	10	0.5	EPA 8260B
29	1,2-Dichloroethane	107062	National Toxics Rule	0.38	0.5	EPA 8260B
	cis-1,2-Dichloroethene	156592	Primary MCL	6	0.5	EPA 8260B
31	1,2-Dichloropropane	78875	Calif. Toxics Rule	0.52	0.5	EPA 8260B
101	1,2,4-Trichlorobenzene	120821	Public Health Goal	5	0.5	EPA 8260B
76	1,3-Dichlorobenzene	541731	Taste & Odor	10	0.5	EPA 8260B
32	1,3-Dichloropropene	542756	Primary MCL	0.5	0.5	EPA 8260B
77	1,4-Dichlorobenzene	106467	Primary MCL	5	0.5	EPA 8260B
17	Acrolein	107028	Aquatic Toxicity	21	2	EPA 8260B
18	Acrylonitrile	107131	National Toxics Rule	0.059	2	EPA 8260B
19	Benzene	71432	Primary MCL	1	0.5	EPA 8260B
20	Bromoform	75252	Calif. Toxics Rule	4.3	0.5	EPA 8260B
34	Bromomethane	74839	Calif. Toxics Rule	48	1	EPA 8260B
21	Carbon tetrachloride	56235	National Toxics Rule	0.25	0.5	EPA 8260B
22	Chlorobenzene (mono chlorobenzene)	108907	Taste & Odor	50	0.5	EPA 8260B
24	Chloroethane	75003	Taste & Odor	16	0.5	EPA 8260B
25	2-Chloroethyl vinyl ether	110758	Aquatic Toxicity	122 (3)	1	EPA 8260B
26	Chloroform	67663	OEHHA Cancer Risk	1.1	0.5	EPA 8260B
35	Chloromethane	74873	USEPA Health Advisory	3	0.5	EPA 8260B
23	Dibromochloromethane	124481	Calif. Toxics Rule	0.41	0.5	EPA 8260B
27	Dichlorobromomethane	75274	Calif. Toxics Rule	0.56	0.5	EPA 8260B
36	Dichloromethane	75092	Calif. Toxics Rule	4.7	0.5	EPA 8260B
33	Ethylbenzene	100414	Taste & Odor	29	0.5	EPA 8260B
88	Hexachlorobenzene	118741	Calif. Toxics Rule	0.00075	1	EPA 8260B
89	Hexachlorobutadiene	87683	National Toxics Rule	0.44	1	EPA 8260B
91	Hexachloroethane	67721	National Toxics Rule	1.9	1	EPA 8260B
94	Naphthalene	91203	USEPA IRIS	14	10	EPA 8260B
38	Tetrachloroethene	127184	National Toxics Rule	0.8	0.5	EPA 8260B
39	Toluene	108883	Taste & Odor	42	0.5	EPA 8260B
40	trans-1,2-Dichloroethylene	156605	Primary MCL	10	0.5	EPA 8260B
43	Trichloroethene	79016	National Toxics Rule	2.7	0.5	EPA 8260B
44	Vinyl chloride	75014	Primary MCL	0.5	0.5	EPA 8260B
	Methyl-tert-butyl ether (MTBE)	1634044	Secondary MCL	5	0.5	EPA 8260B
	Trichlorofluoromethane	75694	Primary MCL	150	5	EPA 8260B
	1,1,2-Trichloro-1,2,2-Trifluoroethane	76131	Primary MCL	1200	10	EPA 8260B
	Styrene	100425	Taste & Odor	11	0.5	EPA 8260B
	Xylenes	1330207	Taste & Odor	17	0.5	EPA 8260B

SEMI-VOLATILE ORGANICS						
60	1,2-Benzanthracene	56553	Calif. Toxics Rule	0.0044	5	EPA 8270C
85	1,2-Diphenylhydrazine	122667	National Toxics Rule	0.04	1	EPA 8270C
45	2-Chlorophenol	95578	Taste and Odor	0.1	2	EPA 8270C
46	2,4-Dichlorophenol	120832	Taste and Odor	0.3	1	EPA 8270C
47	2,4-Dimethylphenol	105679	Calif. Toxics Rule	540	2	EPA 8270C
49	2,4-Dinitrophenol	51285	National Toxics Rule	70	5	EPA 8270C
82	2,4-Dinitrotoluene	121142	National Toxics Rule	0.11	5	EPA 8270C
55	2,4,6-Trichlorophenol	88062	Taste and Odor	2	10	EPA 8270C
83	2,6-Dinitrotoluene	606202	USEPA IRIS	0.05	5	EPA 8270C
50	2-Nitrophenol	25154557	Aquatic Toxicity	150 (5)	10	EPA 8270C
71	2-Chloronaphthalene	91587	Aquatic Toxicity	1600 (6)	10	EPA 8270C
78	3,3'-Dichlorobenzidine	91941	National Toxics Rule	0.04	5	EPA 8270C
62	3,4-Benzofluoranthene	205992	Calif. Toxics Rule	0.0044	10	EPA 8270C
52	4-Chloro-3-methylphenol	59507	Aquatic Toxicity	30	5	EPA 8270C
48	4,6-Dinitro-2-methylphenol	534521	National Toxics Rule	13.4	10	EPA 8270C
51	4-Nitrophenol	100027	USEPA Health Advisory	60	5	EPA 8270C
69	4-Bromophenyl phenyl ether	101553	Aquatic Toxicity	122	10	EPA 8270C
72	4-Chlorophenyl phenyl ether	7005723	Aquatic Toxicity	122 (3)	5	EPA 8270C
56	Acenaphthene	83329	Taste and Odor	20	1	EPA 8270C
57	Acenaphthylene	208968	No Criteria Available		10	EPA 8270C
58	Anthracene	120127	Calif. Toxics Rule	9,600	10	EPA 8270C
59	Benzidine	92875	National Toxics Rule	0.00012	5	EPA 8270C
61	Benzo(a)pyrene (3,4-Benzopyrene)	50328	Calif. Toxics Rule	0.0044	0.1	EPA 8270C
63	Benzo(g,h,i)perylene	191242	No Criteria Available		5	EPA 8270C
64	Benzo(k)fluoranthene	207089	Calif. Toxics Rule	0.0044	2	EPA 8270C
65	Bis(2-chloroethoxy) methane	111911	No Criteria Available		5	EPA 8270C
66	Bis(2-chloroethyl) ether	111444	National Toxics Rule	0.031	1	EPA 8270C
67	Bis(2-chloroisopropyl) ether	39638329	Aquatic Toxicity	122 (3)	10	EPA 8270C
68	Bis(2-ethylhexyl) phthalate	117817	National Toxics Rule	1.8	3	EPA 8270C
70	Butyl benzyl phthalate	85687	Aquatic Toxicity	3 (7)	10	EPA 8270C
73	Chrysene	218019	Calif. Toxics Rule	0.0044	5	EPA 8270C
81	Di-n-butylphthalate	84742	Aquatic Toxicity	3 (7)	10	EPA 8270C
84	Di-n-octylphthalate	117840	Aquatic Toxicity	3 (7)	10	EPA 8270C
74	Dibenzo(a,h)-anthracene	53703	Calif. Toxics Rule	0.0044	0.1	EPA 8270C
79	Diethyl phthalate	84662	Aquatic Toxicity	3 (7)	2	EPA 8270C
80	Dimethyl phthalate	131113	Aquatic Toxicity	3 (7)	2	EPA 8270C
86	Fluoranthene	206440	Calif. Toxics Rule	300	10	EPA 8270C
87	Fluorene	86737	Calif. Toxics Rule	1300	10	EPA 8270C
90	Hexachlorocyclopentadiene	77474	Taste and Odor	1	1	EPA 8270C
92	Indeno(1,2,3-c,d)pyrene	193395	Calif. Toxics Rule	0.0044	0.05	EPA 8270C
93	Isophorone	78591	National Toxics Rule	8.4	1	EPA 8270C
98	N-Nitrosodiphenylamine	86306	National Toxics Rule	5	1	EPA 8270C
96	N-Nitrosodimethylamine	62759	National Toxics Rule	0.00069	5	EPA 8270C
97	N-Nitrosodi-n-propylamine	621647	Calif. Toxics Rule	0.005	5	EPA 8270C
95	Nitrobenzene	98953	National Toxics Rule	17	10	EPA 8270C
53	Pentachlorophenol	87865	Calif. Toxics Rule	0.28	0.2	EPA 8270C
99	Phenanthrene	85018	No Criteria Available		5	EPA 8270C
54	Phenol	108952	Taste and Odor	5	1	EPA 8270C
100	Pyrene	129000	Calif. Toxics Rule	960	10	EPA 8270C

INORGANICS						
	Aluminum	7429905	Ambient Water Quality	87	50	EPA 6020/200.8
1	Antimony	7440360	Primary MCL	6	5	EPA 6020/200.8
2	Arsenic	7440382	Ambient Water Quality	0.018	0.01	EPA 1632
15	Asbestos	1332214	National Toxics Rule/ Primary MCL	7 MFL	0.2 MFL >10um	EPA/600/R-93/116(PCM)
	Barium	7440393	Basin Plan Objective	100	100	EPA 6020/200.8
3	Beryllium	7440417	Primary MCL	4	1	EPA 6020/200.8
4	Cadmium	7440439	Public Health Goal	0.07	0.25	EPA 1638/200.8
5a	Chromium (total)	7440473	Primary MCL	50	2	EPA 6020/200.8
5b	Chromium (VI)	18540299	Public Health Goal	0.2	0.5	EPA 7199/1636
6	Copper	7440508	National Toxics Rule	4.1 (2)	0.5	EPA 6020/200.8
14	Cyanide	57125	National Toxics Rule	5.2	5	EPA 9012A
	Fluoride	7782414	Public Health Goal	1000	0.1	EPA 300
	Iron	7439896	Secondary MCL	300	100	EPA 6020/200.8
7	Lead	7439921	Calif. Toxics Rule	0.92 (2)	0.5	EPA 1638
8	Mercury	7439976	TMDL Development		0.0002 (11)	EPA 1669/1631
	Manganese	7439965	Secondary MCL/ Basin Plan Objective	50	20	EPA 6020/200.8
9	Nickel	7440020	Calif. Toxics Rule	24 (2)	5	EPA 6020/200.8
10	Selenium	7782492	Calif. Toxics Rule	5 (8)	5	EPA 6020/200.8
11	Silver	7440224	Calif. Toxics Rule	0.71 (2)	1	EPA 6020/200.8
12	Thallium	7440280	National Toxics Rule	1.7	1	EPA 6020/200.8
	Tributyltin	688733	Ambient Water Quality Calif. Toxics Rule/ Basin Plan Objective	0.063	0.002	EV-024/025
13	Zinc	7440666		54/ 16 (2)	10	EPA 6020/200.8
PESTICIDES - PCBs						
110	4,4'-DDD	72548	Calif. Toxics Rule	0.00083	0.02	EPA 8081A
109	4,4'-DDE	72559	Calif. Toxics Rule	0.00059	0.01	EPA 8081A
108	4,4'-DDT	50293	Calif. Toxics Rule	0.00059	0.01	EPA 8081A
112	alpha-Endosulfan	959988	National Toxics Rule	0.056 (9)	0.02	EPA 8081A
103	alpha-Hexachlorocyclohexane (BHC)	319846	Calif. Toxics Rule	0.0039	0.01	EPA 8081A
	Alachlor	15972608	Primary MCL	2	1	EPA 8081A
102	Aldrin	309002	Calif. Toxics Rule	0.00013	0.005	EPA 8081A
113	beta-Endosulfan	33213659	Calif. Toxics Rule	0.056 (9)	0.01	EPA 8081A
104	beta-Hexachlorocyclohexane	319857	Calif. Toxics Rule	0.014	0.005	EPA 8081A
107	Chlordane	57749	Calif. Toxics Rule	0.00057	0.1	EPA 8081A
106	delta-Hexachlorocyclohexane	319868	No Criteria Available		0.005	EPA 8081A
111	Dieldrin	60571	Calif. Toxics Rule	0.00014	0.01	EPA 8081A
114	Endosulfan sulfate	1031078	Ambient Water Quality	0.056	0.05	EPA 8081A
115	Endrin	72208	Calif. Toxics Rule	0.036	0.01	EPA 8081A
116	Endrin Aldehyde	7421934	Calif. Toxics Rule	0.76	0.01	EPA 8081A
117	Heptachlor	76448	Calif. Toxics Rule	0.00021	0.01	EPA 8081A
118	Heptachlor Epoxide	1024573	Calif. Toxics Rule	0.0001	0.01	EPA 8081A
105	Lindane (gamma-Hexachlorocyclohexane)	58899	Calif. Toxics Rule	0.019	0.019	EPA 8081A
119	PCB-1016	12674112	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
120	PCB-1221	11104282	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082

121	PCB-1232	11141165	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
122	PCB-1242	53469219	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
123	PCB-1248	12672296	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
124	PCB-1254	11097691	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
125	PCB-1260	11096825	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
126	Toxaphene	8001352	Calif. Toxics Rule	0.0002	0.5	EPA 8081A
	Atrazine	1912249	Public Health Goal	0.15	1	EPA 8141A
	Bentazon	25057890	Primary MCL	18	2	EPA 643/ 515.2
	Carbofuran	1563662	CDFG Hazard Assess.	0.5	5	EPA 8318
	2,4-D	94757	Primary MCL	70	10	EPA 8151A
	Dalapon	75990	Ambient Water Quality	110	10	EPA 8151A
	1,2-Dibromo-3-chloropropane (DBCP)	96128	Public Health Goal	0.0017	0.01	EPA 8260B
	Di(2-ethylhexyl)adipate	103231	USEPA IRIS	30	5	EPA 8270C
	Dinoseb	88857	Primary MCL	7	2	EPA 8151A
	Diquat	85007	Ambient Water Quality	0.5	4	EPA 8340/ 549.1/HPLC
	Endothal	145733	Primary MCL	100	45	EPA 548.1
	Ethylene Dibromide	106934	OEHHA Cancer Risk	0.0097	0.02	EPA 8260B/ 504
	Glyphosate	1071836	Primary MCL	700	25	HPLC/ EPA 547
	Methoxychlor	72435	Public Health Goal	30	10	EPA 8081A
	Molinate (Ordram)	2212671	CDFG Hazard Assess.	13	2	EPA 634
	Oxamyl	23135220	Public Health Goal	50	20	EPA 8318/ 632
	Picloram	1918021	Primary MCL	500	1	EPA 8151A
	Simazine (Princep)	122349	USEPA IRIS	3.4	1	EPA 8141A
	Thiobencarb	28249776	Basin Plan Objective/ Secondary MCL	1	1	HPLC/ EPA 639
16	2,3,7,8-TCDD (Dioxin)	1746016	Calif. Toxics Rule	1.30E-08	5.00E-06	EPA 8290 (HRGC) MS
	2,4,5-TP (Silvex)	93765	Ambient Water Quality	10	1	EPA 8151A
	Diazinon	333415	CDFG Hazard Assess.	0.05	0.25	EPA 8141A/ GCMS
	Chlorpyrifos	2921882	CDFG Hazard Assess.	0.014	1	EPA 8141A/ GCMS

OTHER CONSTITUENTS					
Ammonia (as N)	7664417	Ambient Water Quality	1500 (4)		EPA 350.1
Chloride	16887006	Agricultural Use	106,000		EPA 300.0
Flow			1 CFS		
Hardness (as CaCO <sub>3</sub> )			5000		EPA 130.2
Foaming Agents (MBAS)		Secondary MCL	500		SM5540C
Nitrate (as N)	14797558	Primary MCL	10,000	2,000	EPA 300.0
Nitrite (as N)	14797650	Primary MCL	1000	400	EPA 300.0
pH		Basin Plan Objective	6.5-8.5	0.1	EPA 150.1
Phosphorus, Total (as P)	7723140	USEPA IRIS	0.14		EPA 365.3
Specific conductance (EC)		Agricultural Use	700 umhos/cm		EPA 120.1
Sulfate		Secondary MCL	250,000	500	EPA 300.0
Sulfide (as S)		Taste and Odor	0.029		EPA 376.2
Sulfite (as SO <sub>3</sub> )		No Criteria Available			SM4500-SO3
Temperature		Basin Plan Objective	°F		
Total Dissolved Solids (TDS)		Agricultural Use	450,000		EPA 160.1

FOOTNOTES:

(1) - The Criterion Concentrations serve only as a point of reference for the selection of the appropriate analytical method. They do not indicate a regulatory decision that the cited concentration is either necessary or sufficient for full protection of beneficial uses. Available technology may require that effluent limits be set lower than these values.

(2) - Freshwater aquatic life criteria for metals are expressed as a function of total hardness (mg/L) in the water body. Values displayed correspond to a total hardness of 40 mg/L.

(3) - For haloethers

(4) - Freshwater aquatic life criteria for ammonia are expressed as a function of pH and temperature of the water body. Values displayed correspond to pH 8.0 and temperature of 22 C.

(5) - For nitrophenols.

(6) - For chlorinated naphthalenes.

(7) - For phthalate esters.

(8) - Basin Plan objective = 2 ug/L for Salt Slough and specific constructed channels in the Grassland watershed.

(9) - Criteria for sum of alpha- and beta- forms.

(10) - Criteria for sum of all PCBs.

(11) - Mercury monitoring shall utilize "ultra-clean" sampling and analytical methods. These methods include:

Method 1669: Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels, US EPA; and

Method 1631: Mercury in Water by Oxidation, Purge and Trap, and Cold Vapor Atomic Fluorescence, US EPA

## Dioxin and Furan Sampling

Section 3 of the State Implementation Plan requires that each NPDES discharger conduct sampling and analysis of dioxin and dibenzofuran congeners. Dioxin and Furan sampling shall be conducted in the effluent and receiving water once during dry weather and once during wet weather.

Each sample shall be analyzed for the seventeen congeners listed in the table below. High Resolution GCMS Method 8290, or another method capable of individually quantifying the congeners to an equivalent detection level, shall be used for the analyses.

For each sample the discharger shall report:

- The measured or estimated concentration of each of the seventeen congeners
- The quantifiable limit of the test (as determined by procedures in Section 2.4.3, No. 5 of the SIP)
- The Method Detection Level (MDL) for the test

The TCDD equivalent concentration for each analysis calculated by multiplying the concentration of each congener by the Toxicity Equivalency Factor (TEF) in the following table, and summing the resultant products to determine the equivalent toxicity of the sample expressed as 2,3,7,8-TCDD.

Congener	TEF
2,3,7,8TetraCDD	1
1,2,3,7,8-PentaCDD	1.0
1,2,3,4,7,8-HexaCDD	0.1
1,2,3,6,7,8-HexaCDD	0.1
1,2,3,7,8,9-HexaCDD	0.1
1,2,3,4,6,7,8-HeptaCDD	0.01
OctaCDD	0.0001
2,3,7,8-TetraCDF	0.1
1,2,3,7,8-PentaCDF	0.05
2,3,4,7,8-PentaCDF	0.5
1,2,3,4,7,8-HexaCDF	0.1
1,2,3,6,7,8-HexaCDF	0.1
1,2,3,7,8,9-HexaCDF	0.1
2,3,4,6,7,8-HexaCDF	0.1
1,2,3,4,6,7,8-HeptaCDF	0.01
1,2,3,4,7,8,9-HeptaCDF	0.01
OctaCDF	0.0001